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## BUREAU OF INDIAN STANDARDS MINUTES

Hydraulic Gates & Valves Sectional Committee, WRD 12	Twentieth Meeting
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Day and Date	Time	Venue	Contact details
12 March 2021	10 30 AM	CISCO WEBEX PLATFORM	wrd@bis.gov.in

<b>Chairman:</b> Shri V K Maini, (Presently ED, SBD & C)	<b>Member Secretary:</b> Shri Dushyant Prajapati, Sc D
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### PARTICIPANTS

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### Item 0 WELCOME AND INTRODUCTORY REMARKS

The Chairman welcomed all the members of the Committee. The Chairman also emphasized for at least two meeting in a year for the Sectional Committee and requested BIS for preparing a meeting calendar so as to facilitate all the members. The Chairman requested all the member organization for their active contribution in the Committee work.

### Item 1 CONFIRMATION OF THE MINUTES OF THE LAST MEETING

The Committee CONFIRMED the minutes of the 19<sup>th</sup> meeting of Sectional Committee held on 17 Sept 2019, as circulated by BIS.

### Item 2 COMPOSITION OF WRD 12

2.1 The committee NOTED item 2.1 of the agenda and the Composition of the Sectional Committee as given at annex 1 of the agenda.

2.3 The Committee noted item 2.2 of the agenda and requested BIS to once again request the following member organizations for fresh nominations/active participation. The Chairman requested BIS to resend a request letter to CEA and Texmaco Rail & Engg. Ltd. with copy to the Chairman.

- a) Central Electricity Authority, New Delhi
- b) Irrigation Research Institute, Roorkee,
- c) Water resources Deptt., Odisha,
- d) Texmaco Rail & Engineering Ltd., Kolkata

2.4 The Committee RATIFIED the nomination details of the organizations as follow:

- a) BHEL, Bhopal: Sh. Harish Kumar, Senior Manage (Design)  
Sh. Mohammad Waliullah, Manager (Design), *Alternate*
- b) CWC, New Delh: Sh. Harkesh Kumar Director (Gates E&NE)  
Sh. Saket Krishna, Deputy Director (Gates, E&NE), *Alternate*
- c) IIT, Roorkee: Prof. R.P. Saini  
Prof. K.S. Hariprasad, *Alternate*
- d) WRD, CDO Nasik : Superintending Engineer (Gates CDO)  
(Maharashtra) Exe. Engineer (GO-4, CDO) *Alternate*

### Item 3 PROGRAM OF WORK

The Committee may noted item 3 of the agenda.

### Item 4 STANDARDS FOR REVISION

#### **4.1 Doc. No. WRD 12 (678) IS 4622: 2003 Recommendations for Structural Design of Fixed Wheel Gates (Fourth Revision)**

The Committee noted item 4.1 of the agenda. The Committee observed that the newly printed standard requires minor technical changes. The Committee noted the comments received from NHPC on the printed standard IS 4622:2020. The Chairman observed that all the editorial comments suggested by NHPC are acceptable, however regarding the technical comments, NHPC would re discuss these comments with CWC and submit the final proposal for amendment later to the Committee. The decision of the Committee on NHPC comments is placed at **ANNEX-A** (Page 6). The Committee opined to take the final decision on all the comments of NHPC for amendment in next meeting.

#### **4.2 Recommendations for Structural Design of Medium and High Head Slide Gates IS 9349: 2006 for its third revision {Earlier Doc. WRD 12 (11587)}**

The Committee noted item 4.2 of the agenda. During the last meeting, constituted adHoc panel (comprising of Shri Rajesh Kumar, NHPC, Convenor ; Shri Saket Krishna, CWC ; and Dr. V. Surya Anantapantula) was requested to provide the draft document on revision of the above standard. The Committee observed that final draft is awaited from the panel however NHPC has submitted their comments. The Chairman observed that all the editorial comments suggested by NHPC are acceptable, however regarding the technical comments, it was suggested that NHPC would re discuss these comments with CWC and the constituted panel and submit final comments to BIS by May 2021. The decision of the Committee on NHPC comments is placed at **ANNEX-B** (Page 9). The Committee requested BIS to incorporate the final comments received from NHPC and place the modified draft document in WIDE CIRCULATION for comments.

#### **4.3 Recommendation for Structural Design of Radial Gates IS 4623: 2000 (Fourth Revision) {Earlier Doc. No. WRD 12(682)}**

The Committee noted item 4.3 of the agenda. During the last meeting, constituted adHoc panel (comprising of Shri Rajesh Kumar, NHPC, Convenor ; Shri Saket Krishna, CWC ; and Dr. V Surya Anantapantula) , who was requested to provide the draft document on revision of the standard. The Committee observed that final draft is still awaited from the panel however NHPC has submitted their comments. The Chairman observed that all the editorial comments suggested by NHPC are acceptable, however regarding the technical comments, it was suggested that NHPC would re discuss these comments with CWC and the constituted panel and submit final comments to BIS by May 2021. The decision of the Committee on NHPC comments is placed at **ANNEX-C** (Page 12). The Committee requested BIS to incorporate the final comments received from NHPC and place the draft modified document in WIDE CIRCULATION for comments.

#### **4.4 WRD 12 (622) IS 11228 Recommendation for Design of Screw Hoists for Hydraulic Gates**

The Committed noted item 4.4 of the agenda. It was observed that finalized draft is still under printing process. The document as finalized was further corrected with the missing formula in clause 6.3.4 and corrections in Fig. 2. The Committee opined to take further views on the finalized draft wrt to the technological advancements taken since then and therefore decided to DROP the document as finalized earlier. The Committee further requested BIS to place the modified draft incorporating the views of the Chairman in WIDE CIRCULATION for comments.

#### **4.5 IS 14177: 1994 Guidelines for Painting System for Hydraulic Gates and Hoists (First Revision) {Earlier Doc. No. WRD 12 (11262)P}**

The Committee noted item 4.5 of the agenda and observed that constituted panel was requested to submit the modified document on the revision of above standard. When no further inputs were received from the panel, the committee during its last meeting requested NHPC to submit their comments/modified draft. The Committee observed the comments received from NHPC as placed at annex 3 of the agenda. After deliberations on the comments received, the Chairman opined before the committee that NHPC will relook into the comments placed at annex 3 and submit the final draft to BIS within one month. The comments with decisions are placed at **ANNEX-D** (Page 14). The Committee requested BIS to incorporate the decision of NHPC as received and place the final modified draft in WIDE CIRCULATION for comments.

### **5 NEW SUBJECTS UNDER CONSIDERATION**

#### **5.1 Recommendations for Structural Design Criteria for Stoplogs**

**{Earlier Document WRD 12 (14342) P}**

(Approval of subject in Division Council is awaited)

The Committee noted item 5.1 of the agenda. The Committee noted the final draft received from NHPC (as circulated by email along with agenda of this meeting) with the resolution on comments from CDO Nasik and Sh. A.P. Pattanaik. The Committee deliberated on the subject and opined that circulated draft still requires many improvements and changes. The Committee constituted an adHoc Panel of the following members and requested them to review the document within next 2 months. BIS Secretariat informed the panel members for all assistance and further requested panel for a virtual meeting if required to finalize the document. The Member Secretary requested members to give their comments on the circulated document latest by 25 April 2021 so that collated comments can be placed before the panel for deliberation.

1. Shri Saket Krishna, CWC (Convenor)
2. Shri Rajeev Mundada, WRD Maharashtra
3. Sh. Rajesh Kumar, NHPC
4. Dr. V. Surya Anantpantula, P.E.S. Engg. P. Ltd,
5. Sh. S.K. Sinha, RM Sinha & Co.
6. Shri Abhaya Pattanaik , Odisha Construction Corp. Ltd.
7. Shri V.K. Gupta, Jaypee Infra Ventures P. Ltd.

The Chairman requested the panel members to adhere to the time limits as the above subject is pending for standardization very long.

#### **5.2 Recommendations for Structural Design of Adit Gates**

(Approval of subject in Division Council is awaited)

The draft document on Adit gates is pending and Dr. V. Surya Anantpantula informed BIS that he will provide the draft document within next 3 months. This is for information to all the members of the Committee, as the above item was not covered under the agenda of this 20<sup>th</sup> meeting.

### **ITEM 6 ANY OTHER ITEM**

### **6.1 IS 7236: Part 1:1992 Penstock and turbine inlet butterfly valve for Hydro power stations and Systems Part 1 Criteria for structural and hydraulic design**

The Committee noted item 6.1 of the agenda and deliberated on the queries raised under RTI on IS 7236: Part 1. The Committee observed that there is no ambiguity in the standard and existing content is self-explanatory. The Committee however requested the Chairman to give a suitable reply to the query and sent to BIS.

### **6.2 Revision of Old published Standards**

The Committee noted item 6.2 of the agenda and agreed to revise the old published standards as placed before the Committee. The Committee after deliberations opined that members need some time to give their inputs for the revision of the standard. The Committee therefore requested BIS to circulate the editable files of the following standards among all the members for their comments as working drafts.

IS No.	Title of the Standard
IS 11228:1985	Recommendations for design of screw hoists for hydraulic gates
IS 11793:1986	Guidelines for Design of Float-driven Hoisting Mechanism for Automatic Gated Control
IS 4410 : Part 16 : Sec 2: 1981	Glossary of terms relating to river valley projects Part 16 Gates and valves Section 2 Valves
IS 7326 : Part 3: 1976	Penstock and turbine inlet butterfly valves for hydropower stations and systems Part 3 Recommendations for operations and maintenance

### **6.3 Gender Responsive Standards**

The Committee noted item 6.2 of the agenda.

### **Item 7 VOTE OF THANKS**

The Committee meeting ended with vote of thanks.

## ANNEX-A

**Comments of NHPC on IS 4622: 2020 Recommendation for Structural Design Of Fixed Wheel Gates**

Sl. No.	Clause/	Type of Comment	Justification for change	Proposed Change	DECISION
1	5th paragraph of "FOREWORD"	Technical	Improvement Highlighted information needs to be incorporated in the code.	The fourth revision of the Standard incorporates Amendment No. 1, 2 (to be marked in code) and modifications in 5.11.1 (other modified clauses needs to be included in code).	Will be updated once the draft is finalized.
2.	5.4.3.1	Technical	Deletion The formula in the clause uses for computing contact stress.  The following formula shall be used for computing the wheel frictional forces for bush and roller bearing.	The contact stresses between the wheel and the track shall be calculated in accordance with the following formula:	NHPC will review and submit the final proposal
3	5.5.3	Editorial	Deletion  Highlighted text is repeatedly written and needs to be deleted.	The seal interference of double stem or music note type seal shall vary from 2 mm to 5 mm depending upon <del>shall vary from 2 mm to 5 mm depending upon</del> the requirement and type of installation at the discretion of the designer.	Agreed
4	5.6.2	Editorial	Improvement The paragraph needs to be in continuation with above paragraph.	(in continuation with above paragraph) condition. Guide rollers may also be provided with suitable springs,	Agreed

				whenever required. Guide rollers may be preferred for high head gates and gates to be handled by lifting beams.	
5	5.7.1, 5.7.2, 5.7.3, 5.7.3.1, 5.7.4, 5.7.5, 5.7.5.1, 5.7.5.2, 5.7.5.4, 5.7.5.5, 5.7.6	Technical	Improvement  The content of clauses is related to wheel track.	Replace "Pin" with "track" in all mentioned clauses.	NHPC will review and submit the final proposal
6	5.11.1	Editorial	Deletion  The mentioned notes in clause is associated with FIG.3 and needs to be deleted.	NOTES 1 Edges AB and CC to be chamfered. 2 Edges BC to be rounded.	Agreed
7	10	Technical	Improvement  As per Table 6.3 of IS 2825, the maximum plate thickness shall be of 30 mm & above for which post weld heat treatment is required.	Member thickness needs to be reviewed in line with Table 6.3 of IS 2825.	NHPC will review and submit the final proposal
8	ANNEX C (Fig. 7)	Technical	Improvement The caption of figure needs to be corrected in accordance with illustrated figure.  Highlighted text needs to be incorporated/ deleted.	TWO SHORT AND ONE LONG EDGES FIXED AND ONE LONG EDGE SIMPLY SUPPORTED.	Agreed
9	ANNEX C (Fig. 7)	Technical	Improvement The caption of figure needs to be corrected in accordance with illustrated figure.  Highlighted text needs to be	TWO LONG AND ONE SHORT EDGES FIXED AND ONE SHORT EDGE SIMPLY SUPPORTED.	Agreed

			incorporated/ deleted.		
10	ANNEX E (E-1.3, E-1.5,	Technical	New Insertion  The content of annexure is related to wheel track.	Replace "Pin" with "track" in all mentioned clauses.	NHPC will review and submit the final proposal
11	ANNEX E	Technical	New Insertion  The suggested content needs to be inserted as footnote in ANNEX E.	The above will hold good for a flat track and a crowned wheel. In cases where a flat wheel with a crowned track is used, R1 may be taken as the radius of track. in mm,	NHPC will review and submit the final proposal
12	ANNEX H (Sr. No. 1 & 5)	Technical	Improvement  The content of clauses are related to wheel track.	Replace "Pin" with "track" in all mentioned clauses.	NHPC will review and submit the final proposal



## ANNEX B

## Comments from NHPC on IS 9349: 2006 Recommendations For Structural Design of Medium and High Head Slide Gates

Sl. No.	Clause	Type of Comment	Justification for change	Proposed Change	DECISION
1	4	Editorial	Deletion Highlighted text needs to be deleted.	TYPE AND” REQUIREMENT	Agreed
2	9.1.12	Technical	Improvement in line with published IS 4622 :2020  Content needs to be incorporated in the clause.	However, in case of gates with upstream top seals a maximum deflection of the gate leaf at the top seal shall not be more than 80 percent of the initial interference of the seal.	NHPC will review and submit the final proposal
3	9.5.4	Editorial	Correction Highlighted correction needs to be incorporated.	.....gate seal, when gate is in filly fully open position.	Agreed
4	9.7	Editorial	Correction  Highlighted correction needs to be incorporated.	...It should be designed for fill full hydrostatic... pressure	Agreed
5	9.9	Technical	Improvement in line with published IS 4622 :2020  Highlighted text needs to be incorporated in the clause.	...The minimum size (diameter) of anchor bolts should not be less than 16mm and the anchor plate thickness should not be less than 10 mm.....	Agreed

6	17	Technical	Improvement  As per Table 6.3 of IS 2825, the maximum plate thickness shall be of 30 mm & above for which post weld heat treatment is required.	Member thickness needs to be reviewed in line with Table 6.3 of IS 2825.	NHPC will review and submit the final proposal
7	ANNEX B (Sl. No. i)	Technical	Deletion (IS 8500 is withdrawn and superseded by IS 2062).  Highlighted text needs to be deleted.	IS 2062, IS 8500	Agreed
8	ANNEX D (Fig. 7)	Technical	Improvement The caption of figure needs to be corrected in accordance with illustrated figure.  Highlighted text needs to be incorporated/ deleted.	TWO SHORT AND ONE LONG EDGES FIXED AND ONE LONG EDGE SIMPLY SUPPORTED.	Agreed
9	ANNEX D (Fig. 7)	Technical	Improvement The caption of figure needs to be corrected in accordance with illustrated figure.  Highlighted text needs to be incorporated/ deleted.	TWO SHORT LONG AND ONE LONG SHORT EDGES FIXED AND ONE LONG SHORT EDGE SIMPLY SUPPORTED.	Agreed

10	ANNEX G	Technical	Improvement  Retain the components as mentioned in extant IS code and take tolerance limits as suggested in published IS 4622 :2020.	ANNEX G needs to be revised.	NHPC will review and submit the final proposal
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## ANNEX C

Comments from NHPC on Recommendation for Structural Design of Radial Gates IS 4623: 2000  
(Fourth Revision) {Earlier Doc. No. WRD 12(682)}

Sl. No.	Clause/	Type of Comment	Justification for change	Proposed Change	DECISION
1	3.4	Editorial	Correction Highlighted correction needs to be incorporated.	.....another anchorage or <del>support</del> support girder, in addition to....	Agreed
2	Table 1 (i, iv, vii)	Technical	Deletion (IS 8500 is withdrawn and superseded by IS 2062).  Highlighted text needs to be deleted.	IS 2062, IS 8500	Agreed
3	6.7.1 (c)	Editorial	Correction Highlighted correction needs to be incorporated.	For heights above <del>12</del> 12 m	Agreed
4	6.10.7	Editorial	Correction Highlighted correction needs to be incorporated.	.....the same is not <del>mad</del> made of corrosion resistant steel.	Agreed
5	6.11.2 (1,3)	Editorial	Correction Highlighted text needs to be entered into related column.	Move fit under column "Machine Tolerance" into column "Type of Fit"	Agreed
6	6.14.15	Technical	Improvement  As per Table 6.3 of IS 2825, the maximum plate thickness shall be of 30 mm & above for which post weld heat treatment is required.	Member thickness needs to be reviewed in line with Table 6.3 of IS 2825.	NHPC will review and submit the final proposal
7	6.17.2	Editorial	Correction Highlighted correction needs to be incorporated.	..... If screwed, the head of the screws shall lie at least 1 mm below the surface of the seal seat.	Agreed

8	6.19.2	Technical	Improvement in line with published IS 4622 :2020  Highlighted text needs to be incorporated in the clause.	...The minimum size (diameter) of anchor bolts should not be less than 16mm and the anchor plate thickness should not be less than 10 mm.	NHPC will review and submit the final proposal
9	6.21	Technical	Improvement Highlighted text needs to be incorporated in the clause.	.....However other tests like ultrasonic test dye penetrant.....	Agreed
10	7.3	Editorial	Correction Highlighted correction needs to be incorporated.	Whenever occasional overtopping of gate is allowed the design of gate shall be checked for increased <u>stresses</u> .	Agreed
11	ANNEX C (Fig. 7)	Technical	Improvement The caption of figure needs to be corrected in accordance with illustrated figure.  Highlighted text needs to be incorporated/ deleted.	TWO SHORT AND ONE LONG EDGES FIXED AND ONE LONG EDGE SIMPLY SUPPORTED.	Agreed
12	ANNEX C (Fig. 7)	Technical	Improvement The caption of figure needs to be corrected in accordance with illustrated figure.  Highlighted text needs to be incorporated/ deleted.	TWO SHORT LONG AND ONE LONG SHORT EDGES FIXED AND ONE LONG SHORT EDGE SIMPLY SUPPORTED.	Agreed
13	ANNEX C (Table 4)	Technical	Correction Highlighted correction needs to be incorporated.	Table 4 Valves Values of k for Points and Support Conditions Given in Fig. 11.	Agreed
14	8	Editorial	Correction Highlighted correction needs to be incorporated.	a) ..by an even surface pressure of 30000 N/m <sup>2</sup> up to 3 m depth b) ..by an even surface pressure of 20000 N/m <sup>2</sup> to 2 m depth.	Agreed

## ANNEX-D

Comment from NHPC on IS 14177:1994 Guidelines for Painting system for Hydraulic Gates and Hoists  
{ Earlier Doc WRD 12(11262)P}

Sl. No	Clause/	Type of Comment	Justification for change	Proposed Change	DECISION
1	3rd Paragraph of "FOREWORD"	Editorial	Correction  Serial numbers are missing in the list w.r.t extant IS code.	1) ISO-8501-I:1988 Preparation of ..... 2) BS 4232: 1967 specification for ..... 3) Swedish standard SIS055900 Rust grades .....	Not Agreed
2	Additional reference may be added in clause no. 2.	General	Suggestion	1) IS 14589: 1999 Zinc priming paint, epoxy based (Two Pack) 2) IS 14948:2001 Paint coal tar epoxy, two pack, black and brown (base and hardner) 3) IS 13467:1992 Chlorinated rubber for paints.	NHPC will Review and give final inputs in modified draft.  <i>Any Standard in Reference clause needs to come in the main body of the standard at its relevant place.</i>
3	Clause no.2	Editorial	Correction  Highlighted correction needs to be incorporated.	6586-1989 <u>Recommended</u> practices for metal spraying for protection of iron and steel.	Agreed
4	Clause no. 3.1	Editorial	Correction Clause heading is missing w.r.t extant IS code.	<u>3.1 Location</u> The painting.....	Agreed
5	Clause no. 4.2	Editorial	Correction  Clause heading is	<u>4.2 Types of Surface Preparation</u>	Agreed

				missing w.r.t extant IS code.		
6	Clause 4.2.1	no.	Technical	Improvement  IS 4683-1968 designated iron grit as G-C.	“Surfaces requiring blast cleaning should be sand/grit/shot blasted after fabrication with sand or coarse quartz or using iron grit grade G-C 40 to white metal prior to painting.”	NHPC will Review and give final inputs in modified draft.
7	Clause 4.2.1	no.	Editorial	Correction  Highlighted correction needs to be incorporated.	Heavy deposits of grease or oil may be removed by the solvent like clean mineral, spirits, xylol or white gasoline, etc. <u>prior</u> to sand blasting	Agreed
8	Clause 4.2.1.4	no.	Editorial	Correction  Highlighted correction needs to be incorporated.	The extent of residue should not be more than 60 percent of any single square having an area of 6.25 cm <sup>2</sup> .	Agreed
9	Clause 4.2.2	no.	Editorial	Correction  Highlighted correction needs to be incorporated.	After hand and power tool cleaning, the surface should be <u>cleaned</u> of loose dust and debris.	Agreed

10	Clause no. 4.2.3	Technical	<p>Suggestion</p> <p>In referred IS code 5905 (1989) and IS code 6586 – 1989 in preliminary draft, the surface preparation and painting system of iron and steel by metal spraying are mentioned.</p>	<p>Delete clause no 4.2.3</p> <p>Within four hours of blasting the complete external surface of the skin plates shall be sprayed using thermal spraying method with pure aluminium/zinc to a thickness of not less than 100 microns. Immediately after metalizing and in any case within four hours, primer coating as per cl. 5.1 shall be done followed by epoxy painting.</p> <p>New clause is proposed and to be added in clause 5.2.1.2</p> <p>4. “ Besides above, if the prepared surface is protected by metal spraying method then surface preparation and painting system shall be adopted as per IS code 5905 and 6586”.</p>	NHPC will Review and give final inputs in modified draft.
11	Clause no. 5.1 (Para.8)	Editorial	<p>Correction</p> <p>Highlighted correction needs to be incorporated.</p>	<p>After finish coating <u>and curing</u>, part should be reassembled as required for shipment and coating on bolts or connections that will not be removed in erection should be touched up.</p>	Agreed
12	Clause no. 5.2 (Para.2)	Editorial	<p>Correction</p> <p>Highlighted correction is missing w.r.t extant IS code.</p>	<p>If due to practical reasons the finishing coat is applied in the field the finished <u>coat should be applied within the time gap permitted by the paint manufacturer</u> between the primer coat and finished coat.</p>	Agreed
13	Clause no. 5.2 (Para.3)	Editorial	<p>Correction</p>	<p>Metal work adjacent to field weld, riveting or bolting <u>where</u> the shop</p>	Agreed



			Highlighted correction needs to be incorporated.	paint coating has been damaged due to handling or due to heat should be cleaned thoroughly to expose the base metal and should be repainted.	
14	Clause no. 5.2.1.2 (1)	Editorial	Correction:  Highlighted correction needs to be incorporated.	Over the prepared surfaces <u>one</u> coat of Inorganic zinc silicate (preferably airless spray) should be applied giving a dry <u>film</u> thickness of 70 + 5 microns.	Agreed
15	Clause no. 5.2.1.2 (1)	Editorial	Correction:  Highlighted correction needs to be incorporated.	Alternatively, two coats of zinc rich primer (containing not less than 85% zinc on dry film) should be applied to give a total dry film thickness of 70 + 5 microns.	Agreed
16	Clause no. 5.2.1.2 (3)	Editorial	Correction  Highlighted correction is missing w.r.t extant IS code.	.....should be applied. Alternatively two coats of zinc rich primer (containing not less than 85% zinc on dry <u>film</u> ) should be applied to give a total dry film thickness of 75 + 5 microns.	Agreed
17	Clause no. 5.2.1.3	Editorial	Correction:  Highlighted correction needs to be incorporated.	Over the primer coats the following finished <u>coats</u> should be applied.	Agreed
18	Clause no. 5.2.1.3 (2)	Editorial	Correction  Highlighted correction is missing w.r.t extant IS code.	Each coat of paint should give a <u>minimum dry film thickness of 65 + 5 microns. The interval between coats should be 24 hours.</u>	Agreed
19	Clause no. 5.2.2.2	Editorial	Correction:	.....rust inhibitive wash at an rate approximately	Agreed

			Highlighted correction needs to be incorporated.	<u>30 ml/m<sup>2</sup></u> and allowed to dry for 24 hours.....	
20	Clause no. 5.2.2.3(4)	Editorial	Correction:  Highlighted correction needs to be incorporated.	All unmachined surfaces should be given one primer coat of chlorinated rubber based <u>zinc</u> phosphate primer to give a dry film thickness of 50+5 micros.	Agreed